Answer on Question#39116 – Physics - Mechanics

A constant force of 39.1 N, directed at 27.5° from horizontal, pulls a mass of 12.3 kg horizontally a distance of 3.01 m. Calculate the work done by the force.

Solution:

The work done by a constant force of magnitude F on a point that moves a displacement (not distance) d in the direction of the force is the product:

$$W = F_x \cdot d = F \cos \alpha \cdot d = 39.1N \cdot \cos 27.5° \cdot 3.01m = 104.4J$$

Answer: work done by the force is equal to 104.4J